PROCESS INTEGRATION SCHEME TO LOWER OVERALL DIELECTRIC CONSTANT IN BEOL INTERCONNECT STRUCTURES

Abstract

Back-End of Line (BEoL) interconnect structures, and methods for their manufacture, are provided. The structures are characterized by narrower conductive lines and reduced overall dielectric constant values. Conformal diffusion barrier layers, and selectively formed capping layers, are used to isolate the conductive lines and vias from surrounding dielectric layers in the interconnect structures. The methods of the invention employ techniques to narrow the openings in photoresist masks in order to define narrower vias. More narrow vias increase the amount of misalignment that can be tolerated between the vias and the conductive lines.

Figure: 9B